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B7M27

REPORT OF THE COMMISSIONER

ON THE PART OF MARYLAND,

FOR THE

Re-locating and Re-marking

OF THE BOUNDARY LINE

BETWEEN

Maryland and Virginia

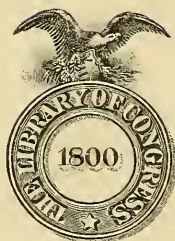
IN TANGIER AND POCOMOKE SOUNDS.

Hon. THOS. S. HODSON,
COMMISSIONER FOR MARYLAND.

Hon. BENJ. T. GUNTER,
COMMISSIONER FOR VIRGINIA.

—1898.—





Class F187

Book B7 M 27



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REPORT OF THE COMMISSIONER

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ON THE PART OF MARYLAND,

FOR THE

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Re-locating and Re-marking

OF THE BOUNDARY LINE

BETWEEN

✓
Maryland and Virginia

IN TANGIER AND POCOMOKE SOUNDS.

Hon. THOS. S. HODSON,
COMMISSIONER FOR MARYLAND.

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HANZSCHE & CO.,
PRINTERS AND ENGRAVERS,
BALTIMORE.

June 27/77.

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BETWEEN

MARYLAND and VIRGINIA

IN TANGIER AND POCOMOKE SOUNDS.

HIS EXCELLENCY, LLOYD LOWNDES,
Governor of Maryland, Annapolis, Md.

DEAR SIR :

I have the honor to transmit herewith the joint report of Engineers W. C. HODGKINS and J. B. BAYLOR as to their operations in the recent re-locating and re-marking of the line in Tangier and Pocomoke Sounds. But a few words of explanation on my part, in addition to this report, will suffice.

There has been, for some years past, at various times, trouble between the citizens of Maryland and the Oyster Police Force of Virginia, along the line between the two States. Arrests of persons and property by the Virginia Oyster Police have been made affecting citizens of Maryland, who have invariably appealed to the Executive of this State, claiming that the arrests have been made while they were pursuing their daily labor, either of oyster-ing or crabbing, within the territory of Maryland. As these offences took place on broad waters, in which there was no visible

mark or monument to define the Boundary Line, honest differences of opinion could have existed and doubtless did exist. The tendency in each State was to believe its own citizens and to discredit and blame those of the other State. This state of things produced great friction and damage, and was the cause of great anxiety to the Executive. While every proper impulse of his nature led him to espouse the cause and redress the wrongs of injured citizens, yet it was first necessary to know whether or not the parties charged were within our own territory. In one instance, the case of Capt. B. F. Marsh's vessels, the joint Committee of the Legislatures of the two States agreed that the arrest was made in Maryland, by the Virginia authorities.

It was therefore plain that the line must be clearly and permanently marked, in order that unscrupulous men might not have it in their power, if they chose to do so, to plunge the sister States into a continuous state of semi-warfare. It became necessary to do this to enable good citizens to establish and maintain their rights, and that trespassers and mauraunders might be exposed and known in their true characters.

With these objects in view, on the 26th day of May last, you issued to me a commission, authorizing me, in conjunction with a Commissioner on the part of Virginia, to re-locate and mark the Boundary Line between the States, in Tangier and Pocomoke Sounds; on receiving it I at once arranged to visit Richmond, Va. and confer as your agent and at your request with Gov. Chas. T. O'Ferrall. I visited Richmond at an early day, accompanied by Mr. Dallam, your Secretary of State. Gov. O'Ferrall received us kindly, acknowledged the importance of the proposed action and agreed to appoint, at once, a Commissioner, on the part of Virginia, to co-operate with me in re-marking and re-locating the line.

After waiting a month or more I addressed a letter to Gov. O'Ferrall, calling his attention to the matter, and he replied very courteously that he would appoint a Commissioner at an early day. Again, on August 31st, I addressed him a letter on the subject, to which I never received a reply. Finally, on October 25th, I received your letter, in which was contained the letter of Gov. O'Ferrall, as follows :

HIS EXCELLENCY, LLOYD LOWNDES,
Governor of Maryland, Annapolis, Md.

DEAR SIR :

Yours of the 20th inst. is at hand and is entirely satisfactory.

I have appointed Mr. Benjamin T. Gunter, Jr., of Accomac County, a Commissioner on the part of Virginia. His P. O. address is Accomac C. H., Va.

I suggest that the services of two Engineers of the U. S. Coast and Geodetic Survey be secured—one to be selected by each State.

Awaiting your early reply, I remain, with respect,

Your obedient servant,

CHAS. T. O'FERRALL,
Governor of Virginia.

I at once put myself in communication with the Virginia Commissioner, who informed me that he had received the notice of his appointment only, and that to his request for instructions he had received no reply.

About the middle of November, I was informed at the office of Secretary of the Treasury, Gage, that at the direct request of Gov. O'Ferrall, he had appointed Mr. J. B. Baylor of the Coast and Geodetic Survey as Engineer on the part of Virginia. I at once informed Mr. Gunter, who had not been apprised of this appointment, although he had expected it. Mr. Gunter came to see me and we talked over matters generally, and it was agreed that it was proper to consult the Light House Board and the War Department before putting down any permanent marks in navigable

waters, such as might be considered obstructions to navigation. As Mr. Gunter was obliged to return to Accomac it was agreed that I should attend to this. Accordingly, on November 22nd, I visited Washington again and filed with Secretary Gage an application for the appointment of an Engineer as follows :

HON. LYMAN GAGE,

Secretary of the Treasury, Washington, D. C.

DEAR SIR :

I have the honor to request the appointment of Mr. W. C. Hodgkins, Assistant U. S. Coast and Geodetic Survey, to re-locate and mark, on the part of Maryland, the Boundary Line between Maryland and Virginia in the waters of Tangier and Pocomoke Sounds. I have the honor to be,

Very respectfully yours,

[Signed] THOMAS S. HODSON,

Commissioner for Maryland.

To which I received the following reply :

TREASURY DEPARTMENT, WASHINGTON, D. C.

OFFICE OF THE SECRETARY,

November 22d, 1897.

MR. THOS. S. HODSON,

No. 6 Lexington St., Baltimore, Md.

SIR :

In compliance with the request contained in your letter of the 19th inst., Mr. W. C. Hodgkins, an Assistant in the U. S. Coast and Geodetic Survey, has this day been directed to report to you for duty in marking the Boundary Line between Maryland and Virginia, in Pocomoke Sound and River.

Respectfully yours,

L. GAGE,

Secretary.

These difficulties left but one more to be removed, *viz:* to agree upon and provide the permanent marks necessary to preserve the line after its re-location. This we substantially agreed upon, but we were also satisfied that the weather would not permit them to be put down at this season of the year and that we might take plenty of time to discuss and determine upon them.

I then saw the Light House Board, which disclaimed any authority to pass upon the question and referred me to the War Department for further information. The Secretary of War referred me to Gen. Wilson, chief of the Engineer Corps of the Army. To this officer I submitted a Coast Survey Chart, with the line in question accurately laid down upon it by the Coast and Geodetic Survey, also the following letter :

BALTIMORE, MD., *November 20th*, 1897.

HON. RUSSELL A. ALGER,

Secretary of War, U. S., Washington, D. C.

DEAR SIR :

I have the honor to state that I have been appointed on the part of the State of Maryland, to re-locate and mark the Boundary Line between Maryland and Virginia, in Tangier and Pocomoke Sounds, jointly with Benj. T. Gunter, Jr., Esq., the Commissioner on the part of Virginia. In this application, which is made with the knowledge and consent of Mr. Gunter, I represent him as well as myself.

As at present advised, we propose to put up a permanent and prominent mark upon the land at "Horse Hammock" on Smith's Island, and one or two solid iron screw piles, from five to eight inches in diameter, in the water Eastward on a line running from the first named mark South $79^{\circ}, 30'$ East far enough and prominent enough to establish a range and give the bearing of the line. We do not propose to establish any monument whatever at "A" or "B" on the accompanying map, but we propose to mark from where the water is ten feet deep, between "B" and Fox Island, on the line, in the same as Horse Hammock, by putting up two or more monuments in the water, to be used in making a range for the line. From Watkins Point we propose to proceed for some distance in the same way. None of the monuments so far spoken of can be construed as interfering with navigation in the slightest degree, but at the end of the line from Watkins Point, at the letter "C", a substantial monument placed there might be considered by Hon. Secretary of War, or some other persons, as an interference or obstruction. So again at the letter "D" on said chart.

We therefore respectfully ask that this Department will indicate, at as early a day as possible, whether or not our action will meet with its approval. I will add that the line and the original marks (which are now gone) were approved soon after they were laid down by Act of Congress (1878).

I have the honor to be, very respectfully,

Your obedient servant,

THOS. S. HODSON,

Commissioner on the Part of Maryland.

To this I received the following reply :

WASHINGTON, *December 3d*, 1897.

SIR :

I have the the honor to acknowledge the receipt of your letter of 20th ultimo., stating that you have been appointed, jointly with Benj. T. Gunter, Jr., Esq., the Commissioner on the part of Virginia (whom you represent in this application as well as yourself) to re-locate and mark the Boundary Line between those States, in Tangier and Pocomoke Sounds; that you propose to erect certain piles or monuments to mark a portion of said Boundary Line in those waters, as shown on the chart accompanying your letter, and asking if there is any objection on the part of navigation interests to the erection of such structures.

In reply I beg to inform you that there is no objection to the proposed piles or monuments from Horse Hammock East, provided they do not extend beyond the 11-foot curve on the line South 79°, 30' East.

Nor is there any objection to the proposed monuments from Watkins Point to "B" on line South 85°, 15' West, provided the one nearest the channel shall be inside the 11-foot curve. There is no objection to the proposed monuments at the points marked "C" and "E."

Very respectfully,

[Signed,] R. A. ALGER,
Secretary of War.

THOS. S. HODSON, ESQ.,

*Commissioner on the part of Maryland to re-locate
Boundary Line between Maryland and Virginia,
Baltimore, Md.*

On December the 8th the Commissioners and Engineers of both States met in Baltimore, on board the Maryland Police Steamer, "Governor Thomas," and sailed together for Crisfield where we arrived before day-break the next day. We proceeded first to Watkins Point. We could there find no trace of the stone, set up by Lieut. Abbott, in 1883. We found two pieces of ungalvanized gas pipe, 2½ inches in diameter, on the upper end of Fox Island. One of them (the Eastward) had not been moved. The other, originally set up on the marsh, was now in navigable water and had probably been down more than once and had been set up again very nearly in the same place as before.

We then went to Smith's Island where we found a stone with a groove cut in the top, running from east to west, having on one side the letter M and the other the letter V. To the North of this, in the marsh, was a gas pipe similar to the one just described, and to the Eastward, near the shore and also near the storehouse of the late Johnson Evans, was another one.

As there was no one living at Horse Hammock, some of our party were compelled to walk nearly three miles in the marsh to Drum Point, in order to find some one by whom it could be known whether or not they were in the same position as when left by Lieut. Abbott in 1883. Mr. Benjamin F. Marsh and others, on the evening of the 9th and the morning of the 10th, visited us at Horse Hammock, and verified the location of the stone and the gas pipe to the North of it. The other pipe originally stood out in the water and had been washed down several times. It had remained down at times for several months and had been replaced each time nearer to the stone and pipe, but in the same line otherwise. This last pipe had marked the turn or angle—the stone not being at the end of the line. The rear pipe near the stone, however, was on the continuation backward of the line out in Tangier Sound and intended in conjunction with the one on the shore as a range pole. The angle or turn must therefore, necessarily, be where the line through the stone prolonged East crossed the line made by the two range poles. The report of Lieut. Abbott did not make this clear, however. I therefore addressed a letter to the War Department making inquiry of Lieut. Abbott as to the matter, to which he replied locating the angle just as we had previously done of our own motion. The two Commissioners therefore agreed on the angle at Horse Hammock. We also agreed upon the Eastward pipe at Fox Island and upon the line running through it to the post between Watkins Point and Green Harbor.

By some error in the former survey this latter point, when located, was 324 feet South of its true location from Horse Hammock. As we were re-locating and not making an original location of the line, we felt bound to adhere to the pipe on Fox Island and to follow that line to the end at Watkins Point.

We also found a piece of iron pipe, put down by Mr. Junkin, in 1885, under Aydelotte and Bagwell, at point "D" on the chart. We were also bound to adhere to this. The first serious difficulty we encountered was at point "C," lying between Watkins Point and "D," where no trace could be found of the buoy placed there by Junkin, in 1885. The boulder at Watkins being 324 feet too far South and that at "D" 240 feet too far West, the consequence was that if the line from Watkins was run East and the line from "D" South-Westwardly—each following the courses and distances of the Black and Jenkins award—they would not meet by 400 yards. Some arrangement therefore was necessary of this difficulty if we were to *re-locate* and *re-mark* the line, as we were commanded by our commissions to do. There were three ways only to settle it. The one which was most just to the parties and which was recommended by the Engineer for Maryland, was to put "C" in its true location, as calculated from Horse Hammock, and thus to move "C" a little to the North as compared with its location from Watkins, and a little to the Eastward as compared with its location by course and distance from "D." A preliminary post was put down from the steamer on January 18th, in order that a more accurate location of it might be made by triangulation afterward from the shore. This was done in the next day or two and the post was found to be neither East nor West of its proper location but about 50 feet to the South of where it should have been. This was afterward corrected—the post pulled up and put down in its proper place, 50 feet Northward.

The error of 324 feet at Watkins Point, your Commissioner is satisfied, arose from an incident of the survey under Commissioners Bagwell and Aydelotte. The old line between Virginia and Maryland had always been run so as to throw all the houses at Horse Hammock, in Maryland. At the time, when this survey was made, 1883, Johnson Evans who lived there, was exceedingly desirous of being included in Virginia instead of Maryland, and it is said he appealed to the Commissioners to put him there. I was so told by a reliable gentleman on Smith's Island, on the afternoon of December 9th, 1897, and I am informed that the fact was generally known on Smith's Island.

The stone was set at this time at Horse Hammock by Bagwell and Aydelotte, therefore *on the North* of the houses instead of the South of them, where the line had always heretofore been—a difference of just about 320 or 324 feet, to the disadvantage of Maryland.

In order to reach the point where the stone stands at Horse Hammock, Lieut. Abbott was compelled to change the line running across Smith's Island from Sassafras Hammock to Horse Hammock, and to make it run more than one degree North of its true direction. In his report, page 37, he thus describes this line :

“The azimuth given in the award is South 88°, 30' East ; that is in azimuth estimated from the South 271°, 30'. The azimuth of the line actually marked is 270°, 14', 11 86-100''.”

But the most singular feature of the deviation at Horse Hammock is yet to be told. When we come to the detail at Watkins Point, on page 39 of the report, he describes a stone monument which was there placed, and says :

“This stone is 320 feet North of the line, and was only put in as a reference point from which the true boundary could be found by simple measurement.”

The granite stone at Horse Hammock is about 320 feet North of what Black and Jenkins laid down as the line, and of what had before that been recognized as the State line—along the patent of Pittscraft. The Northern part of which was patented in Maryland and the Southern part in Virginia—but the stone at Watkins Point corresponded precisely with the stone at Horse Hammock—the true line, however, being declared to be 320 feet to the South of it.

Lieut. Abbott lays down on his chart (filed with his report) to the South of the stone and the buildings at Horse Hammock, the point defined by the Latitude and Longitude as the end of the line at Horse Hammock, as fixed by the Black and Jenkins award, (page 38). It is marked by an X mark.

It may be asked, why if an error at Horse Hammock was so evident I did not contend for the true location there? The answer is, that it appears that the point selected and marked by the stone was selected and agreed upon and marked by the Commissioners of the two States, each of which is bound by their act. When once solemnly agreed upon between them, each State is forever estopped from denying that any particular spot so agreed upon and marked is the true boundary.

Again, the award calls for a line to run “thence across Smith’s Island South 88° , $30'$ East 5,620 yards to the centre of Horse Hammock on the Eastern shore of Smith’s Island, in Latitude 37° , $57'$, $8''$; Longitude 75° , $59'$, $20''$.” The Commissioners fixed centre at the stone where it now is, North of the houses at Horse Hammock; the Latitude and Longitude fix the centre of the Hammock South of the houses. The Commissioners have not only said that the stone was the centre but it is actually the centre, and a point South of the houses is not the centre. But Black and Jenkins expressly say in the award, which we have approved

“In case of any inaccuracy in the described course or length of the line, or in the Latitude or Longitude of the place, the natural objects called for must govern.”

Under these admitted facts it would have been unworthy of myself or my State to have carried on a baseless and useless contention on this point.

What was lost to us at Horse Hammock was restored to us at Watkins Point. It is fair to presume that the same rule held good out to point "C," in Pocomoke Sound. Unfortunately the can buoy which formerly marked this point, is gone, and we were compelled to re-locate it, so as to do violence neither to the agreed location at Watkins Point 324 feet too far South nor the one at "D" 240 feet too far West. An East line from Watkins Point and the South-West line from "D," laid down in the award, would never meet and there would be a hopeless gap in the line. There was therefore no possible way to discharge our duty of locating and marking the line except by a resort to some such compromise, honorable alike to both, as the one we finally adopted.

The Engineers have also agreed upon the proper marks or monuments necessary to permanently mark and preserve the line as we have located it. We have procured detailed drawings of the same, which have been submitted to thoroughly responsible and reliable parties for estimates of their cost, which will be forwarded to you as soon as received by me.

These will be mostly solid steel piling. They will be quite expensive in the outset but it is safe to say that when once properly placed they will endure far beyond the life-time of any person now living.

The report of the Engineers, now submitted, is only a brief outline of their operations. A large number of observing stations were set up by them, and hundreds of observations were taken from them; all these will be included as scientific matter in their real report, which will, as soon as possible, be submitted by them to the Commissioners and by us to our respective States. These will be exceedingly valuable and should be carefully preserved.

I will say in conclusion, that we are especially fortunate in the Engineers selected by us—one a talented son of Harvard, the other of the University of Virginia. To say that they were careful and competent would afford but a faint idea of their ability and watchfulness. Nothing escaped them, and every problem that arose (and there were many) was solved by them in its purely scientific aspect, without partiality or prejudice. I can truly say for Commissioner Gunter and Mr. J. B. Baylor that in no instance did I detect on their part the slightest unfairness or desire to overreach, and if they detected any of either of these in Mr. Hodgkins or myself it was unintentional and unknown to us.

The weather during our operations was as unpropitious and unfavorable as possible. Calm and clear weather are very necessary for successful triangulation. We had very little of either. It is agreed by the Engineers and stated in their report, that when the permanent marks are put down, observations shall be again taken and any irregularities or errors of location then discovered shall be corrected.

THOS. S. HODSON,

Commissioner for Maryland.

U. S. Coast and Geodetic Survey,
WASHINGTON, D. C.

FEBRUARY 1st, 1898.

Hon. Thos. S. Hodson)

AND

Hon. Benj. T. Gunter.)

Commissioners

FOR THE

Survey of the Boundary Line

BETWEEN

Maryland and Virginia.

DEAR SIRS :

We have the honor to submit the following Report upon the work recently executed by us in the delimitation of the Boundary Line between the States of Maryland and Virginia, under your general direction, as authorized by the Hon. the Secretary of the Treasury, November 20th, 1897.

Respectfully yours,

W. C. HODGKINS, C. E.,

(Harvard University.)

*Assistant C. and G. Survey Engineer
for Maryland.*

J. B. BAYLOR, C. E.,

(University of Virginia.)

*Assistant C. and G. Survey Engineer
for Virginia.*

Joint Report of the Engineers.

It does not seem necessary in this report to enter upon the various questions in controversy leading up to the present survey and we shall therefore confine ourselves strictly to the methods and results of our own work. The Commissioners and the Engineers for both States, having met in Baltimore, left that place on the Maryland Police Steamer, "Governor Thomas," on the evening of December 8th, and arrived at Crisfield on the following morning.

At that place the party was met by the Virginia Police Steamer, "Accomac," and the representatives of Virginia transferred their outfit to that boat.

PRELIMINARY SEARCH FOR LANDMARKS.

A joint examination of the boundary was at once begun, with a view to the discovery of any traces of the marks left by former surveys in 1883 and 1885. Although found at different times, a saving of words and space may be effected by at once describing all of such remains that were discovered. These were as follows:

1. A stone post on Horse Hammock, near the Eastern shore of Smith's Island, marking the course of the line from Sassafras Hammock Eastward. This stone, however, is not at the angle or turning point of the boundary. This conclusion was reached at the time of the examination of the stone on December 9th and was subsequently confirmed by a letter, dated January 3d, 1898, from Capt. F. V. Abbot, U. S. A., the officer who located the stone in 1883.

2. Two iron range poles on Horse Hammock, the more Western of which was nearly North of the stone post and the more Eastern was at the edge of the bank, on the shore of Tangier Sound. These had been intended to mark the direction of the boundary from Horse Hammock towards the point called "A" in the middle of Tangier Sound.

The Western pole was found to be in its proper place, but the Eastern pole had been several times washed out by the encroachments of the waves and was therefore only approximately correct.

3. Two iron range poles near the North end of Fox Island, placed to mark the direction of that part of the line lying between the point called "B" in the middle of Tangier Sound and Watkins Point, North of Green Harbor Island. Of these the Western pole was found in the edge of the Sound and somewhat inclined from the action of the wind and waves. The Eastern pole had been broken off, but the lower portion of it remained intact in the ground with a wooden post or stake driven deeply alongside of it.

4. The remnant of an iron pipe, projecting a short distance above the bottom, at the point called "D" in Pocomoke Sound. This pipe was placed there on May 20th, 1885, and originally projected 12 feet above the surface of the water.

CONDITIONS LIMITING THE WORK.

It should be clearly understood at the outset that Messrs. Black and Jenkins, in making the award of 1877, laid down the Boundary Line upon Coast Chart No. 33, of the U. S. Coast and Geodetic Survey's Series and that the courses, distances, Latitudes, and Longitudes mentioned in the award were all taken from the same chart. This method of procedure, owing to the difficulty of making with exact precision measurements from a small scale chart, led to

unavoidable discrepancies between the Latitudes and Longitudes given in the award and those obtained by computation from the successive courses and distances given. In this survey it has been considered that the given courses and distances, being more precise and definite conditions between successive points of the boundary, should govern the work and that the Latitudes and Longitudes mentioned in the award must be considered as merely descriptive of the general positions of the points. And the discrepancies are, after all, of very slight importance.

Both of the Commissioners concurred in this view of the case.

METHODS.

The practical work of the survey was carried on by means of triangulation, the only method applicable in cases where great distances are to be covered and especially where considerable water intervals are to be spanned.

The observations were made with four repeating theodolites, furnished for the purpose by the Coast and Geodetic Survey. Sextants, tapes and other necessary implements were also furnished by the Survey.

A base line for this work was obtained between two of the stations established by the Coast and Geodetic Survey in 1895, in the course of a survey of the Fox Islands for the State of Virginia. From this base line the triangulation was carried to Horse Hammock in the North-West and to Point "D" in the North-East. The two lighthouses at Crisfield harbor having been included in the triangulation are now available as points of reference for any of the points of the boundary line and we were also able to connect our work with a station of the old triangulation of the Coast

Survey, by means of which we can now give correct Latitudes and Longitudes for the various points of the line. Copies of the observations, computations and results will be submitted at a later date, when finally completed.

In the course of this work, nine signals were built and twelve stations were occupied.

LOCATION OF POINTS.

We now come to the location of the angular points of the line and the establishment of the proper directions for those portions, both ends of which are not marked. As just stated above, the angular point at Horse Hammock was not marked in 1883 and this point was therefore recovered by laying off the proper directions from the stone post on the line West of the angle and from the rear pipe of the range line running towards point "A," the intersection of these two lines giving the desired point.

From Horse Hammock to point "A," the terms of the award require that the line should run South 79° , $30'$ East 4,880 yards. The Western end of this line is marked, as above stated, by the angular point and the back range. The Eastern end is unmarked, the depth of water precluding any other than a floating mark at that point and the Commissioners deeming it unnecessary that the exact point should be indicated in this manner at the present time.

From "A" to "B" the Boundary lies nearly in the middle of Tangier Sound, the course being South 10° , $30'$ West and the distance 4,740 yards. This portion of the line is at present entirely unmarked, the same difficulty of great depth of water existing at "B" as already noted at "A." No oyster or crabbing ground is near this line. From "B" the line runs North 85° , $15'$ East 6,720

yards, to Watkins Point, as fixed by the arbitrators in 1877, crossing on the way the Northern extremity of the Fox Island group.

As above stated, two of the marks placed on Fox Island in 1883 were recovered and the Eastern and evidently undisturbed of these was accepted by the Commissioners as a binding monument. From the careful triangulation made in the present survey, it was found that this part of the line was further South than it should be to conform to the courses and distances from the starting point at Horse Hammock. This discrepancy amounts to about three seconds of Latitude, or about 324 feet. It is no doubt due to the circumstance that in the survey of 1883 there was no connection between the work done at Horse Hammock and that done at Fox Island.

The angle in the boundary line at Watkins Point was fixed by laying off a line through the mark found on Fox Island, on the course prescribed by the award of 1877, to a point having the same difference of Longitude from Horse Hammock as required by the courses and distances of the award. The point so found is of course the same distance South of the line fixed by the award as was the mark on Fox Island, but the line thus located has the advantage of dividing nearly midway the strait or passage between Green Harbor Island and the main marsh. From Watkins Point, the award requires that the Boundary Line should run due East 7,880 yards to a point known as "C" in Pocomoke Sound, and that it should thence run North $47^{\circ} 30'$, East 5,220 yards, to another point known as "D," also in Pocomoke Sound.

Watkins Point being fixed as above described and "D" being fixed by the iron pipe placed there in 1885 (and now recovered) it remained to locate the point called "C." As just stated, the mark at Watkins Point is about 324 feet further South than it should be to conform to the courses and distances from the starting point at

Horse Hammock and a line thence running due East 7,880 yards would locate the point "C" the same distance too far South. On the other hand it is found from our triangulation that the pipe at "D" is further West than it should be to agree with the courses and distances prescribed by the award as above. This discrepancy amounts to about 240 feet and if we locate the point "C" with reference to "D" we should likewise have "C" 240 feet too far West. We thus have two points for "C," either of which will satisfy two of the four requirements given by the courses and distances of the award, but neither of which will satisfy them all. Nor is it possible to find any point which will so satisfy all the conditions. The two positions obtained by the above methods would lie nearly North-West and South-East from one another and 400 feet apart. It being obviously necessary to vary either courses or distances, or both, to find a suitable compromise, it was proposed by the Engineers and agreed by the Commissioners that the point "C" should be located at its true position in accordance with the terms of the award, starting from the mark at Horse Hammock and following the prescribed courses and distances. This location has the following advantages:

It conforms to the intent of the award with reference to this particular point.

It reduces to a minimum the unavoidable gains or losses by either State.

It preserves exactly the distance of 7,880 yards from the turn of the boundary at Watkins Point and varies the course only 48 minutes.

The bearing of "D" from "C" varies only 37 minutes from that given by the award, while the discrepancy in distance is only 57 yards.

All of the above discrepancies are so small as to be hardly noticeable on the map used by the arbitrators as a basis for the award of 1877 and effect no property rights of material value. Taking into consideration the fact, that the line as now located is the result of several independent surveys, which have only in the present instance been brought into correlation with each other, it is a matter of congratulation that the almost unavoidable discrepancies should fall within so moderate limits.

MARKS PLACED ON THE LINE.

A number of marks, some intended to be permanent, while others were of a necessarily temporary character, were placed upon the land and in the water, to indicate the course of the Boundary.

With reference to these, we wish it understood that as the locations were necessarily made from preliminary computations of our observations, we reserve the right to correct any slight inaccuracies which may appear in the revision of our work. This course is deemed preferable to that of continuing the expense of the survey while this careful revision could be made. As it is understood that our temporary marks are to be replaced at an early date by permanent structures, no harm can result from this course. The marks so placed are as follows :

At Horse Hammock the angular point and the back range were marked by terra cotta drain pipes set in cement. The angular point, Horse Hammock, is 276 feet from the granite post located on the line across Smith's Island by Captain F. V. Abbot, U. S. A., in 1883, and already described in this report. The back range is distant 55.6 feet from the stone near the North-Western edge of the Hammock.

At Fox Island, the Eastern and reliable point already marked by the remains of the iron pipe, was further secured by a drain pipe placed around the iron pipe and secured by cement. The Western range pole was also set back beyond present reach of the water and was secured by cement.

At Watkins Point a pine tree about eight inches in diameter was firmly planted in the mud and its position is secured by two lines of ranges upon the marsh to the Northward. One of these lines of ranges passes through the triangulation station called "Sam" in this survey. "Sam," was used as a front range for this line. A drain pipe secured by cement, set in the marsh about 75 yards from the shore line, was used as a rear range for this line. The triangulation station, "Sam," was marked by an iron pipe driven in the marsh. The other line of ranges has a direction from Watkins Point of about 30° East of North. The front range of this line was marked by a drain pipe secured by cement, set in the marsh near the shore line, and the rear range was marked by a drain pipe secured by cement, set in the marsh about 60 yards from the shore line.

At a point approximately midway between Watkins Point and "C," a heavy pile, 30 feet in length, was driven 10 or 12 feet into the bottom.

At "C," a still heavier pile, 32 feet long, was driven down 12 feet and its position is secured by two lines of range marks upon the shore North-West and North from its location. At "D," a pile, 25 feet long, was forced down some 10 feet.

In accordance with your request, we submit in an appended paper, some suggestions as to the kind of permanent marks which we should think most likely to afford the desired definition of the line.

We desire to acknowledge the cordial co-öperation of the officers and men of the State Steamers, "Thomas" and "Accomac," in the course of the survey.

Special commendation should be given to Mr. F. F. Weld of Sugar Grove, Pennsylvania, who acted as assistant observer and measured a large portion of the horizontal angles.

Respectfully yours,

W. C. HODGKINS, C. E.,

(Harvard University.)

*Assistant C. and G. Survey Engineer
for Maryland.*

J. B. BAYLOR, C. E.,

(University of Virginia.)

*Assistant C. and G. Survey Engineer
for Virginia.*

To

HON. THOS. S. HODSON,

Commissioner for Maryland.

and

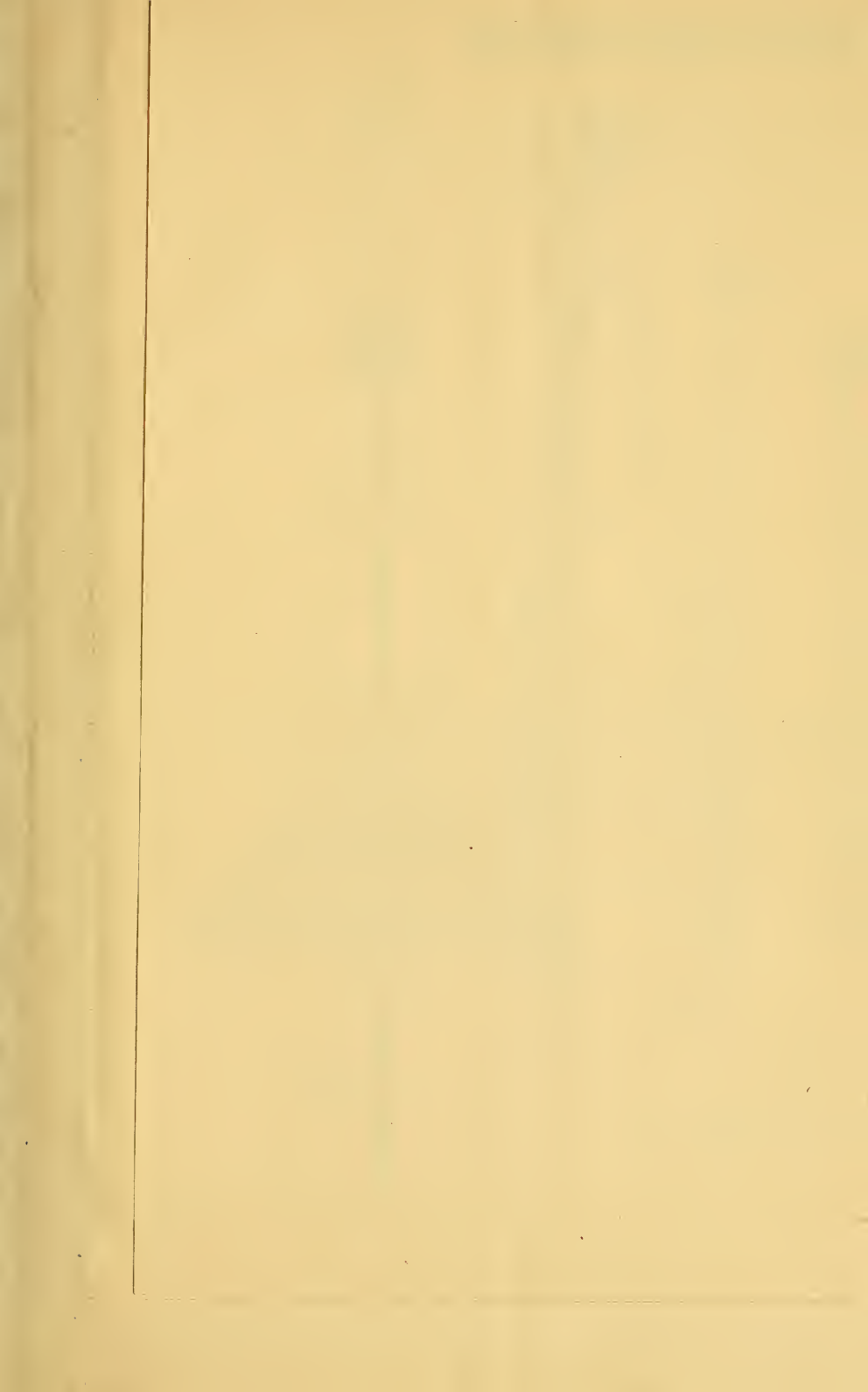
HON. BENJ. T. GUNTER,

Commissioner for Virginia.

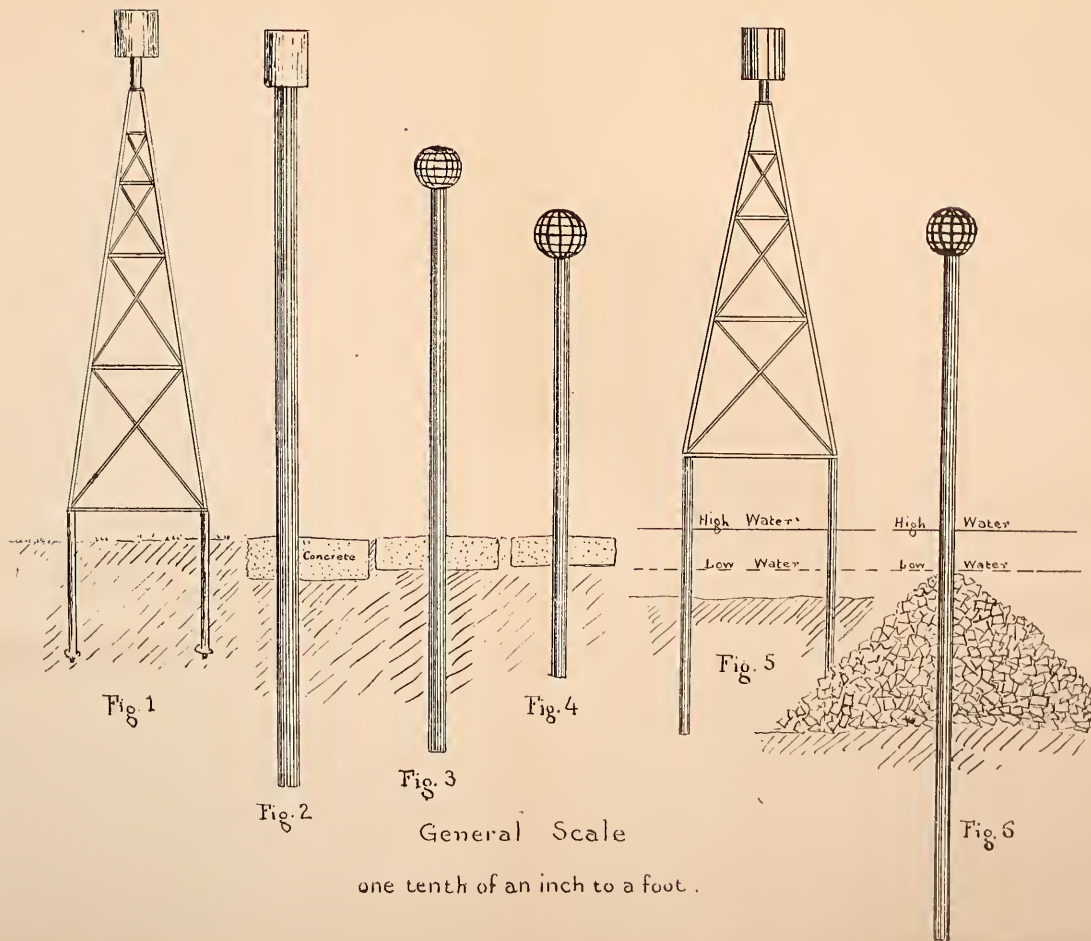
If it be desired to preserve the angular point of the boundary at Horse Hammock, some extensive measure for its protection will be necessary at an early date.

A line of sheet piling with heavy rip rapping will be needed for that purpose. Whether the gain would justify the expense we leave for you to decide.

W. C. HODGKINS,
J. B. BAYLOR.



FIGURES ILLUSTRATING THE ABOVE.











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